

THE INVENTION CLAIMED IS:

1. A fluid path set for use in a fluid delivery system, comprising:
a first section; and

a second section adapted for removable fluid communication with the first section, the second section comprising a pressure isolation mechanism, comprising a lumen, a pressure isolation port, and a valve member comprising a biasing portion biasing the valve member to a normally open position permitting fluid communication between the lumen and the pressure isolation port, the valve member movable to a closed position when fluid pressure in the lumen reaches a predetermined pressure level sufficient to overcome the biasing force of the biasing portion of the valve member.

2. The fluid path set of claim 1, wherein the first section is adapted for connection to a source of fluid to be loaded into a pressurizing device, and wherein the first section comprises a multi-position valve adapted to selectively isolate the fluid source and the second section.

3. The fluid path set of claim 1, wherein the first section comprises an intervening drip chamber between the fluid source and the pressurizing device.

4. The fluid path set of claim 3, wherein the drip chamber comprises a projection.

5. The fluid path set of claim 1, further comprising a pressure transducer associated with the pressure isolation port.

6. The fluid path set of claim 1, wherein the valve member wherein comprises a seat member and a base portion engaged with the seat member, and wherein the biasing portion is a generally cone-shaped portion of the seat member.

7. The fluid path set of claim 6, wherein the generally cone-shaped portion has a predetermined spring force.

8. The fluid path set of claim 6, wherein the seat member is adapted to engage a housing of the pressure isolation mechanism in the closed position of the valve member.

9. The fluid path set of claim 6, wherein the base portion is bonded to the seat member.

10. The fluid path set of claim 1, wherein the pressure isolation mechanism comprises a two-piece housing comprising a first portion cooperating with a second portion.

11. The fluid path set of claim 10, wherein the first portion is in interference fit engagement with the second portion.

12. The fluid path set of claim 11, wherein the first portion and second portion are formed to define a shear interface therebetween.

13. A pressure isolation mechanism, comprising:

a housing defining a lumen and a pressure isolation port; and

a valve member disposed within the housing, the valve member comprising a biasing portion biasing the valve member to a normally open position permitting fluid communication between the lumen and the pressure isolation port, the valve member movable to a closed position when fluid pressure in the lumen reaches a predetermined pressure level sufficient to overcome the biasing force of the biasing portion of the valve member.

14. The pressure isolation mechanism of claim 13, further comprising a pressure transducer associated with the pressure isolation port.

15. The pressure isolation mechanism of claim 13, wherein the valve member comprises a seat member and a base portion engaged with the seat member, and wherein the biasing portion is a generally cone-shaped portion of the seat member.

16. The pressure isolation mechanism of claim 15, wherein the generally cone-shaped portion has a predetermined spring force.

17. The pressure isolation mechanism of claim 15, wherein the seat member is adapted to engage a housing of the pressure isolation mechanism in the closed position of the valve member.

18. The pressure isolation mechanism of claim 15, wherein the base portion is bonded to the seat member.

19. The pressure isolation mechanism of claim 13, wherein the pressure isolation mechanism comprises a two-piece housing comprising a first portion cooperating with a second portion.

20. The pressure isolation mechanism of claim 19, wherein the first portion is in interference fit engagement with the second portion.

21. The pressure isolation mechanism of claim 19, wherein the first portion and second portion are formed to define a shear interface therebetween.

22. A drip chamber, comprising a body with a projection.

23. The drip chamber of claim 22, wherein the projection extends longitudinally along the body.

24. The drip chamber of claim 22, wherein the body is formed of a resiliently deformable plastic material.

25. A fluid path set for use in a fluid delivery system, comprising:

a syringe; and

a multi-patient use section adapted for connection to the syringe and to a primary source of fluid to be loaded into the syringe and comprising an intervening

drip chamber disposed between the primary fluid source and the syringe, the drip chamber comprising a projection.

26. The fluid path set of claim 25, wherein the multi-patient use section is further adapted for connection to a secondary source of fluid to be delivered to the patient and comprises a second intervening drip chamber associated with the secondary fluid source, the second drip chamber comprising a projection.

27. A connector, comprising:

a first connector member comprising an outer housing and a first threaded member disposed in the outer housing; and

a second connector member comprising a second threaded member;

wherein the first threaded member and second threaded member cooperate to securely and releasably connect the first member to the second member, and wherein the second threaded member is received in the outer housing of the first connector member when the first connector member is connected to the second connector member.

28. The connector of claim 27, wherein the first threaded member is recessed within the outer housing.

29. The connector of claim 28, wherein the first threaded member is formed as an externally-threaded luer.

30. The connector of claim 29, wherein the externally-threaded luer is recessed within the outer housing.

31. The connector of claim 27, wherein the second member further comprises a luer disposed in the second threaded member and adapted to cooperate with the first threaded member.

32. The connector of claim 31, wherein the luer is recessed within the second threaded member.

33. The connector of claim 27, wherein the first threaded member is formed as an externally-threaded female luer and the second member further comprises a male luer disposed in the second threaded member, such that the male luer cooperates with the female luer when the first connector member is connected to the second connector member.

34. The connector of claim 33, wherein at least one of the female luer and the male luer are recessed within the outer housing and the second threaded member, respectively.

35. The connector of claim 27, wherein the first threaded member is externally-threaded and the second threaded member is internally-threaded.

36. The connector of claim 35, wherein the second threaded member comprises at least one circumferentially-extending raised structure on an external surface thereof, the raised structure defining a tortuous path with an inner wall of the outer housing for inhibiting liquid flow between the outer housing and the second threaded member when the first connector member is connected to the second connector member.

37. The connector of claim 36, wherein the raised structure defines a chamber with the inner wall of the outer housing and the first threaded member when the first connector member is connected to the second connector member.

38. The connector of claim 27, wherein the second threaded member comprises at least one circumferentially-extending raised structure on an external surface thereof, the raised structure defining a tortuous path with an inner wall of the outer housing for inhibiting liquid flow between the outer housing and the second threaded member when the first connector member is connected to the second connector member.

39. The connector of claim 38, wherein the raised structure defines a chamber with the inner wall of the outer housing and the first threaded member when the first connector member is connected to the second connector member.

40. The connector of claim 27, further comprising a protective cap associated with at least one of the first connector member and the second connector member.

41. The connector of claim 40, wherein the first and second connector members each comprise a raised rib adapted to cooperate with a corresponding groove defined internally in the protective cap.

42. A fluid path set for use in a fluid delivery system, comprising:

a first section;

a second section adapted for removable fluid communication with the first section; and

a connector providing the removable fluid communication between the first section and the second section, the connector comprising:

a first connector member associated with one of the first section and the second section and comprising an outer housing and a first threaded member disposed in the outer housing; and

a second connector member associated with the other of the first section and the second section and comprising a second threaded member;

wherein the first threaded member and second threaded member cooperate to securely and releasably connect the first member to the second member to establish the removable fluid communication between the first section and the second section, and wherein the second threaded member is received in the outer housing of

the first connector member when the first connector member is connected to the second connector member.

43. The fluid path set of claim 42, wherein the first threaded member is recessed within the outer housing.

44. The fluid path set of claim 42, wherein the first threaded member is formed as an externally-threaded luer.

45. The fluid path set of claim 44, wherein the externally-threaded luer is recessed within the outer housing.

46. The fluid path set of claim 42, wherein the second member further comprises a luer disposed in the second threaded member and adapted to cooperate with the first threaded member.

47. The fluid path set of claim 46, wherein the luer is recessed within the second threaded member.

48. The fluid path set of claim 42, wherein the first threaded member is formed as an externally-threaded female luer and the second member further comprises a male luer disposed in the second threaded member, such that the male luer cooperates with the female luer when the first connector member is connected to the second connector member.

49. The fluid path set of claim 48, wherein at least one of the female luer and the male luer are recessed within the outer housing and the second threaded member, respectively.

50. The fluid path set of claim 42, wherein the first threaded member is externally-threaded and the second threaded member is internally-threaded.

51. The fluid path set of claim 50, wherein the second threaded member comprises at least one circumferentially-extending raised structure on an

external surface thereof, the raised structure defining a tortuous path with an inner wall of the outer housing for inhibiting liquid flow between the outer housing and the second threaded member when the first connector member is connected to the second connector member.

52. The fluid path set of claim 51, wherein the raised structure defines a chamber with the inner wall of the outer housing and the first threaded member when the first connector member is connected to the second connector member.

53. The fluid path set of claim 42, wherein the second threaded member comprises at least one circumferentially-extending raised structure on an external surface thereof, the raised structure defining a tortuous path with an inner wall of the outer housing for inhibiting liquid flow between the outer housing and the second threaded member when the first connector member is connected to the second connector member.

54. The fluid path set of claim 53, wherein the raised structure defines a chamber with the inner wall of the outer housing and the first threaded member when the first connector member is connected to the second connector member.

55. The fluid path set of claim 42, further comprising a protective cap associated with at least one of the first connector member and the second connector member.

56. The fluid path set of claim 55, wherein the first and second connector members each comprise a raised rib adapted to cooperate with a corresponding groove defined internally in the protective cap.

57. The fluid path set of claim 42, wherein the first section is adapted for connection to a pressuring device and to a source of fluid to be loaded into the

pressurizing device, and wherein the first section comprises an intervening drip chamber between the fluid source and the pressurizing device.

58. The fluid path set of claim 57, wherein the drip chamber comprises a projection.

59. The fluid path set of claim 42, wherein the second section comprises a pressure isolation mechanism, comprising a lumen, a pressure isolation port, and a valve member comprising a biasing portion biasing the valve member to a normally open position permitting fluid communication between the lumen and the pressure isolation port, the valve member movable to a closed position when fluid pressure in the lumen reaches a predetermined pressure level sufficient to overcome the biasing force of the biasing portion of the valve member.

60. An injector system comprising:

- a source of injection fluid;

- a pump device;

- a fluid path set disposed between the source of injection fluid and the pump device, and comprising a first section adapted for connection to the source of injection fluid and a second section adapted for removable fluid communication with the first section; and

- at least one connector providing the removable fluid communication between the first section and the second section, the connector comprising:

 - a first connector member associated with one of the first section and the second section and comprising an outer housing and a first threaded member disposed in the outer housing; and

 - a second connector member associated with the other of the first section and the second section and comprising a second threaded member;

wherein the first threaded member and second threaded member cooperate to securely and releasably connect the first member to the second member to establish the removable fluid communication between the first section and the second section, and wherein the second threaded member is received in the outer housing of the first connector member when the first connector member is connected to the second connector member.

61. The injector system of claim 60, wherein the first threaded member is recessed within the outer housing.

62. The injector system of claim 60, wherein the first threaded member is formed as an externally-threaded luer.

63. The injector system of claim 60, wherein the second member further comprises a luer disposed in the second threaded member and adapted to cooperate with the first threaded member.

64. The injector system of claim 63, wherein the luer is recessed within the second threaded member.

65. The injector system of claim 60, wherein the first threaded member is formed as an externally-threaded female luer and the second member further comprises a male luer disposed in the second threaded member, such that the male luer cooperates with the female luer when the first connector member is connected to the second connector member.

66. The injector system of claim 65, wherein at least one of the female luer and the male luer are recessed within the outer housing and the second threaded member, respectively.

67. The injector system of claim 60, wherein the first threaded member is externally-threaded and the second threaded member is internally-threaded.

68. The injector system of claim 60, wherein the second threaded member comprises at least one circumferentially-extending raised structure on an external surface thereof, the raised structure defining a tortuous path with an inner wall of the outer housing for inhibiting liquid flow between the outer housing and the second threaded member when the first connector member is connected to the second connector member.

69. The injector system of claim 68, wherein the raised structure defines a chamber with the inner wall of the outer housing and the first threaded member when the first connector member is connected to the second connector member.

70. The injector system of claim 60, further comprising a protective cap associated with at least one of the first connector member and the second connector member.

71. The injector system of claim 70, wherein the first and second connector members each comprise a raised rib adapted to cooperate with a corresponding groove defined internally in the protective cap.

72. The injector system of claim 60, wherein the first section is adapted for connection to a pressurizing device and to the source of injection fluid to be loaded into the pressurizing device, and wherein the first section comprises an intervening drip chamber between the source of injection fluid and the pressurizing device.

73. The injector system of claim 72, wherein the drip chamber comprises a projection.

74. The injector system of claim 60, wherein the second section comprises a pressure isolation mechanism, comprising a lumen, a pressure isolation port, and a valve member comprising a biasing portion biasing the valve member to a normally open position permitting fluid communication between the lumen and the

pressure isolation port, the valve member movable to a closed position when fluid pressure in the lumen reaches a predetermined pressure level sufficient to overcome the biasing force of the biasing portion of the valve member.

75. The injector system of claim 60, wherein the first and second connector members comprise wings for grasping by a user while connecting the first and second connector members.